

Application No. 10/070,298
Paper Dated: December 8, 2004
In Reply to USPTO Correspondence of March 26, 2004
Attorney Docket No. 4083-020383

REMARKS

This Amendment amends claims 1, 2, and 7 and adds new claims 8-18 in accordance with the original disclosure. Support for the claim amendments is found, for example, in original claim 1, in Fig. 4, and in the specification at page 11, lines 3-23. Claims 1-18 are now present in this application.

The previous Amendment submitted on September 24, 2004 is herein incorporated by reference in its entirety.

Drawing and Informality Objections

The objections to the drawings and the informality objections to claims 1-7 have been addressed in the September 24, 2004 Amendment.

Rejections Under 35 U.S.C. § 103

Claims 1-7 were rejected for obviousness over the teachings of U.S. Patent No. 5,071,242 to Yanagisawa in view of the teachings of WO 88/02125 and U.S. Patent No. 4,671,165 to Heidmann et al. In addition to the amendments and arguments submitted in the September 24, 2004 Amendment, Applicant has further amended the claims to clarify the structure of the claimed range binoculars and to further distinguish the structure from the cited references.

As highlighted by the amendments to claim 1, one of the important features of the present invention is that the main case accommodates the first optical member, first objective optical system, first ocular optical system, and the second objective optical system, while the attached case accommodates the second ocular optical system and the second optical member. The attached case is placed on the main case so that the attached case turns on the main case round the second objective optical axis. This structure means that the first optical member, first objective optical system, first ocular optical system, and the second objective optical system are fixed inside the main case and they do not move when the user adjusts the pupil distance. This special structure assures that the range binoculars according to the present invention are free from a deviation of the optical axes and undesirable influences on the electronic parts resulting from vibration caused by the adjustment (see pages 1 and 2 of the specification).

Application No. 10/070,298
Paper Dated: December 8, 2004
In Reply to USPTO Correspondence of March 26, 2004
Attorney Docket No. 4083-020383

The Examiner cites Yanagisawa (U.S. Patent No. 5,071,242), alleging that Yanagisawa discloses the claimed main structure. The Examiner refers to Fig. 55 and the description in column 22, lines 61-68. The description is:

"In the binocular illustrated in FIGS. 55 and 56, when it is desired to adjust the distance between the eyepiece lens-barrels 832b and 847b to match the distance between the observer's eyes, the pair of image-erecting chamber sections 836 and 848 are angularly moved relatively to the disc-shaped binocular body 831 about the respective optical axes 1 and 1' of the objective lens system 833." (emphasis added)

The emphasized part clearly shows the difference between the claimed invention and Yanagisawa's. As explained above, with the binoculars of the present invention, the first optical member and the first ocular optical system do not move around its optical axis when the user adjusts the pupil distance. In other words, the user moves the only attached case, which does not accommodate the components for range-finding, to adjust it. As understood from Fig. 55 of Yanagisawa, the Yanagisawa binoculars basically have a binocular body 831, a pair of image-erecting chamber sections 836 and 848, a pair of eyepiece lens-barrels 832b and 847b, and an objective lens-barrel 832a. Each of the image-erecting chamber sections 836 and 848 includes a pair of prism systems 837 and 838 (see Yanagisawa at column 22, lines 19-25). Eyepiece lens-barrels 832b and 847b are fixedly connected to image-erecting chamber sections 836 and 848 (otherwise, the pupil distance cannot be adjusted by moving the image-erecting chamber sections 836 and 848). Therefore, the first and second optical members and the first and second ocular optical systems are moved when an adjustment of the pupil distance is made. This is a big difference. Yanagisawa just discloses a conventional technology.

The Examiner relies upon WO 88/02125 to compensate for the deficiencies of Yanagisawa. Applicant encloses herewith an English-language translation of a portion of WO 88/02125 from the top of page 4 to the second full paragraph on page 7. Based upon this translation, Applicant believes the Examiner's initial understanding of this German-language reference is incorrect. Specifically, (a) the member denoted by reference numeral 30 is not a range finding means for measuring the distance between the binoculars and the object based on the length of time from the emission of the laser beam to the receiving thereof. The member 30 is a "Richtungsmesser" in German (see claim 1 of WO 88/02125), which means a

Application No. 10/070,298
Paper Dated: December 8, 2004
In Reply to USPTO Correspondence of March 26, 2004
Attorney Docket No. 4083-020383

direction measurer or indicator. As understood from the translation of the fourth paragraph on page 4 of WO 88/02125, this device has at least three functions, which are a traditional binocular function, a high-accuracy distance measuring, and a direction indicator. The "Richtungsmesser 30" or the direction measurer is related to the third function, and not to the second one.

(b) The Examiner states in lines 3-7 on page 5 of the Office Action that WO 88/02125 teaches: "a plate beam splitter or prism beam splitter (4) placed on the second objective optical axis (S1), said splitter reflecting the infrared ray emitted by the laser diode, whereby the infrared ray is sent to said object through the second objective optical system, and said splitter transmitting visible light incoming through the second objective system (fig. 1)". This statement is incorrect. Based on the enclosed translation, the correct disclosure is: The infrared ray emitted by the laser diode (15) is transmitted by the beam splitter (14) placed on the first objective optical axis (S2), whereby the infrared ray is sent to said object through the first objective optical system. (See the translation from the second paragraph on page 5 to the third paragraph on page 6.)

(c) The Examiner states in lines 7-12 on page 5 of the Office Action: "wherein a first optical member (14) is a beam splitter that separates infrared ray from visible light and takes the separated infrared ray out of the light path of said first observation optical system (fig. 1); wherein said laser beam receiver (5) receives an infrared ray (fig. 1) that was emitted by the laser emitter (15) to an object, reflected by said object, sent into the light path of said first observation optical system (S2), and separated by said first optical member (14)". Again, this is incorrect. The correct disclosure is: The first optical member (14) is a beam splitter that transmits the infrared ray emitted by the laser emitter (15); the transmitted infrared ray is sent to an object through the first observation optical system (S2); said laser beam receiver (5) receives the infrared ray (fig. 1) that was reflected by said object, sent into the light path of said second observation optical system (S1), and separated by said first optical member (4). (See the translation from the second paragraph on page 5 to the third paragraph on page 6.)

(d) The Examiner states in lines 12-14 on page 5 of the Office Action: "said laser diode (15) and said laser beam receiver (5) are placed at a part off a light path formed by said first observation optical system (S2) and in the opposite side of the second observation optical system (S1)." The meaning of this statement is unclear. As understood

Application No. 10/070,298
Paper Dated: December 8, 2004
In Reply to USPTO Correspondence of March 26, 2004
Attorney Docket No. 4083-020383

from Fig. 1, the laser diode (15) is placed on the light path formed by said first observation optical system (S2), and the laser beam receiver is placed in the same side as that in which the second observation optical system (S1).

As clearly recited in claim 4, the plate beam splitter or prism beam splitter used for sending the infrared ray to an object in the binoculars of the present invention transmits visible light and reflects infrared rays, which means that the basic functions of the splitter in the binoculars of the invention are the opposite to those of the corresponding beam splitter in the device taught in WO 88/02125. Also, new claim 8 recites the position of the laser diode and the positional relationship between the laser diode and the plate beam splitter or prism beam splitter, which is different from the teaching in WO 88/02125. New claims 9-12 also recite the features concerning the beam splitters unique to the binoculars of the present invention.

The Examiner relies on Heidemann et al. because their displaying means comprises an LCD means (105), a relay lens (128), and a reflecting mirror (125). However, Heidemann does not overcome the shortcomings of the Yanagisawa and WO 88/02125 combination.

Additionally, Heidemann's device shown in Fig. 4 uses a semi-reflecting or dividing plate (123) as an essential component. The plate is so large that it completely covers the focusing face of the reticle, which means all of the visible light coming from the target object passes through the semi-reflecting plate (123). As a result, the transmittance of the observed visible light and the resolving power thereof are considerably reduced. In the case of binoculars, the image made from the visible light passing through the first optical observation system and that made from the visible light passing through the second optical observation system are noticeably different, which results in a degradation of the formed image. Also, since the LCD (105) is positioned at a remote place from the reticle with its displaying face parallel to the focusing face of the reticle, the number of the necessary mirrors is increased.

Therefore, for all of the above reasons, claims 1-7, as amended, are believed patentable over the cited prior art and in condition for allowance.

Application No. 10/070,298
Paper Dated: December 8, 2004
In Reply to USPTO Correspondence of March 26, 2004
Attorney Docket No. 4083-020383

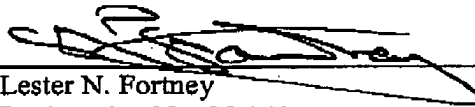
Conclusion

In view of the amendments and arguments set forth above and those previously set forth in the Amendment of September 24, 2004, Applicant believes claims 1-7, as amended, are patentable over the cited prior art and are in condition for allowance. Reconsideration of the rejections of claims 1-7 and allowance of all of claims 1-18 are respectfully requested.

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON
ORKIN & HANSON, P.C.

By



Lester N. Fortney
Registration No. 38,141
Attorney for Applicant
700 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219-1818
Telephone: (412) 471-8815
Facsimile: (412) 471-4094
E-mail: webblaw@webblaw.com